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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/787,201 | 08/15/2001 | Fredrik Innings | 027650-924 | 6078 |

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| EXAMINER | |
|---|---|
| SOOHOO, TONY GLEN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1723 | 14 |

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

14

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/787,201 | INNINGS ET AL. | |
| | Examiner | Art Unit | |
| | Tony G Soohoo | 1723 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

**Remarks to claim terminology**

With regards to the terms "first" and "second" parts of homogenization, a review of the claims in light of the specification there appears to be support for such delineation as seen in the specification page 5, lines 10-14 and lines 15-20. Although the term "first part" and "second part" of the homogenization has not been used in the specification, It is not denied by the examiner that the specification does teach two manipulations. A review of the claims as a whole in light of the specification would appear to originally support such a manipulation defined by the claims and understandable in scope by a person having ordinary skill in the art. Accordingly, the rejection of the claims on the basis of an observation that the terms "first part" and "second part" were not used originally, does not render the claims unclear or provide supporting evidence that the manipulation as claimed was originally unsupported.

However it is strongly urged to provide clarifying phrases of a "first part" and "second part" of the homogenization manipulation within the originally described specification so as to provide a clear description of the separate and different manipulative steps.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Loo 2882025.

Applicant alleges that the claims define over the art of record whereby the prior art fails to show or render obvious the manipulation of pressuredized liquid to pass two concentric placed homogenization gaps disposed adjacent a restricted space whereby the liquid passes out the gaps at high speed into the restricted space to meet the other liquid passing out the respective gap to further cause a further homogenization within the gap.

The closest prior art is the reference to LOO 2882025, although it may be seen that two concentric gaps formed by the ridges upon 33, 32, the reference appears to teach only the homogenization due to the passing of pressurized fluids across the concentric gaps (i.e. applicant's first part of homogenization).

Applicant acknowledges that that a 1st part of homogenization occurs in the method of operation of the Loo device, see remarks of 20 April 2003, paper no 13. on page 7, 2nd paragraph, and on page 8, "Instead, the '025 patent discloses homogenizing a liquid as it passes over sharp ridges 33 and 34. The applicants respectfully submit that the '025 patent does not disclose the second part of a homogenization occurring within the restricted space" (i.e. the second part of homogenization) of (claim 1) "when passing out from one homogenization gaps at high speed and into a restricted space, meets the liquid from one or more of the other homogenization gaps, whereby the liquid

is subjected to a second part of the homogenization in the restricted space, wherein that at least two concentrically placed homogenization gaps are adjacent the restricted space.

The document discloses a method for homogenization of liquids in figure 2 and figure 4, at which the liquid is caused to pass through a metal block valve cone 27, 28, 30, provided with an inlet channel 13, channels 17 and 31, 30, which first run radially and then axially, and then across into narrow concentric (gaps) between concentric gaps at the edges 34 and 33. These gap discharge in an adjacent restricted space (unnumbered) between 33 and 34, in which the liquid from channel 31 meets the liquid from channel 30 at "high speed" exiting form the edge gaps 33, 34 into the restricted space. SEE MARK UP of LOO in the examiner remarks section below

Since the claims do not provide limitation or definition of how the2nd part of the homogenization is measures, or it is deemed that the inherent meeting of the fluids at "high speeds" as it passes across the inner and outer concentric gap edges (from the 1st part of homogenization) into the restricted space of the outlet 36 portion is deemed to fully satisfy the manipulation of the "2nd part" of the homogenization.

Loo on column 4, lines 27-35 further teaches two parts of the homogenization process of the fluid. The 1st step is the flow across the sharp ridge gap in the formation of and the formation of bubbles and vapor, the second homogenization process if the

rushing of liquid at a high speed from the gap after a bubble collapses and smashes fat globules within the restricted space after pass across the gap and prior to exiting the opening 36. The mere meeting of the two concentric fluid flows with a velocity gained from crossing the concentric gap is deemed as inherently mixing together and causing further homogenization. Loo on column 3, lines 22-33, states "The milk flowing through port 20 is force to flow past ridge 32 and the milk in ports 31 is forced to flow either past [concentric] ridge 33 or past [concentric] ridge 34. The ridges or sharp edges 32, 33, 24 cause an abrupt reduction in the pressure of the milk which in turn causes numerous microscopic vapor bubbles to rapidly form and collapse [in a restricted space prior to outlet 36 after passing across the ridge gap] since in milk these cavitation bubbles or vapor bubbles are most likely to develop at the fat-serum interface, when a bubble collapses and the surrounding liquid rushes in to fill the void at a velocity approaching the speed of sound, the flat globules are smashed [in the restricted space prior to the exit outlet 36] to a degree sufficient to effect complete homogenization of the milk. [examiner added remarks in brackets]"

With regards to claim 2 and 6, note that the gaps are created between the two narrow surfaces between the concentric annular ridges of the interface of 28, and 33 of the seat 26 and the valve cone 27, 28.

With regards to claim 3 and 7, note the central through flow channel 30, and concentric flow channel 31 on the valve seat 26.

With regards to claim 4 and 8, note the liquid departs from the gaps about 38, 33 via a channel 36 provided in the valve cone 27.

***Response to Arguments***

3. Applicant's arguments filed 4/28/2003 have been fully considered but they are not persuasive.

Applicant argues with regards to the Loo reference does not show a second part of homogenization.

It is acknowledged by the examiner that applicant does agree that Loo does show concentric groove surfaces whereby liquid is passed across the sharp edge gaps into an area between the grooves and causes a 1st part of the homogenization, as shown by the remarks on page 8, line 8-9.."

However Applicant argues that because Loo does not show the 2nd part of homogenization.

An analysis of the meets and bounds of a 2nd part of homogenization is made:

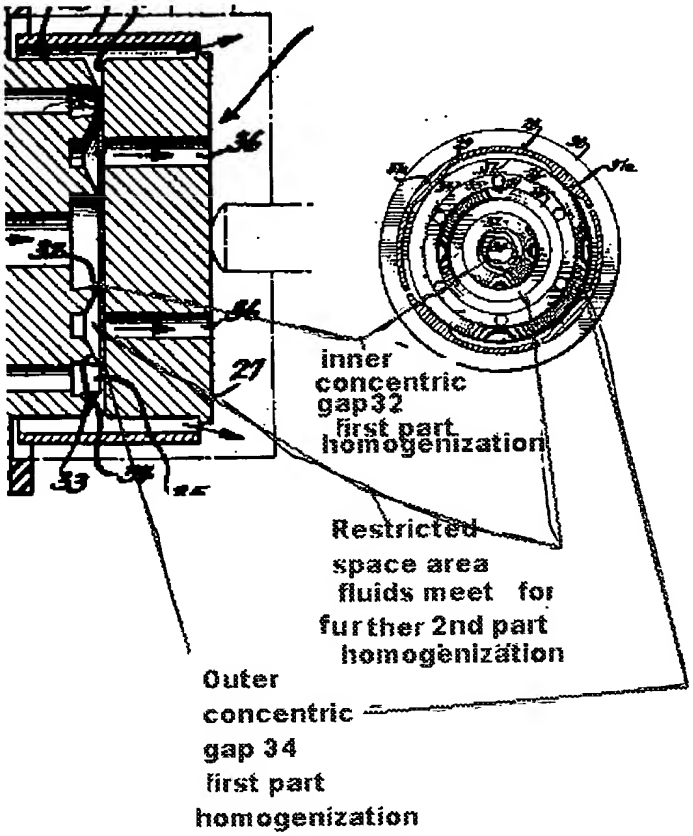
The examiner notes on page 5 of applicant's specification, lines 15-20 state that bubbles are formed by applicant's invention in the second part of the homogenization. "*When the liquid from the two homogenization gaps 12 and 13 departs from the gaps 12 and 13, they will meet at high speed…. One the two flow have converged together, the speed reduces and the pressure one again increases. The liquid stops boiling and the steam bubbles in the liquid implode. The entire process takes place during a few*

*fractions of a second and in the violent process where the high speed and converging of the two flow into one another give rise to turbulence and cavitation, the fat globules which are found in the liquid are shared or split into smaller particles or globules."*

Analysis is made to the 2nd part of homogenization as taught by LOO is made.

In the Loo reference, column 3, line 28-33, and column 4, lines 23-35. points out that surrounding liquid rushes in at the speed of sound with the formation and collapse and collision of bubbles after the passing of fluids from the concentric gaps

In LOO, Column 3, line 28-33, [examiner remarks in brackets]
"The milk flowing through port 30 is forced to flow past ridge 32 and the milk in ports 31 is forced to flow either past ridge 33 or past ridge 34. The ridges or sharp edges 32, 33 and 34 cause [applicant's equivalent term of a 1st part of the homogenization via] an abrupt reduction in the pressure of the milk which in turn causes numerous microscopic vapor bubbles to rapidly form and collapse [in applicant's equivalent term of a 2nd part of the homogenization]. Since in milk these cavitation bubbles or vapor bubbles are most likely to develop at the fat-serum interface, when a bubble collapses and the surrounding liquid rushes in to fill the void at a velocity approaching the speed of sound, the fat globules are smashed to a degree sufficient to effect complete [applicant's equivalent term of the 2nd part of the process in the] homogenization of the milk




Thus, it is deemed that Loo shows both a 1st and 2nd part of homogenization whereby the 1st part of homogenization of passing of material by applicant across applicant's concentric gap ridges 10, 11, 14, 15 in applicant's figure 2 corresponds to Loo's manipulative passing of fluids across the concentric gaps 32, 34 in Loo's figure 4 and 2; and that the 2nd part of applicant's homogenization of meeting fluids expressed across the gaps 10,11 into a restricted space 10 for further homogenization corresponds to the inherent meeting of fluids in Loo's operation of the device as it enters the adjacent space between the outer concentric gap 34 and inner concentric gap 32; finally the fully processed fluid is made to exit out of applicant's outlet 9,

applicant's figure 2 which corresponds to Loo's outlet 36, see Loo's figure 2.

Accordingly, the claims are deemed as being unpatentable over the art.

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G Soohoo whose telephone number is (703) 308-2882. The examiner can normally be reached on 7:00 AM - 5:00 PM, Tues. - Fri.. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tony G Soohoo
Primary Examiner
Art Unit 1723

tgs